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**Vito J. Fossella**  
**Member of Congress**  
**(NY-13)**

**Staff Report on the Impacts of the Federal Aviation  
Administration's Airspace Redesign Project on  
Staten Island**

**2453 Rayburn House Office Building**  
**Washington D.C., 20515**  
**(202) 225-3371**

**[www.house.gov/fossella](http://www.house.gov/fossella)**

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## I. Executive Summary

For the first time since the 1980s, the Federal Aviation Administration (FAA) is redesigning the airspace in and around the New York City Metropolitan area to make the routing of air traffic more efficient, both reducing delays and aircraft noise over populated areas. Known as the New York/New Jersey/Philadelphia Metropolitan Airspace Redesign ("Redesign Plan"), the FAA issued a Draft Environmental Impact Statement (EIS) last year and chose a preferred alternative for rerouting air traffic in the region -- the Integrated Airspace Alternative Variation with the Integrated Control Complex ("Preferred Alternative").

This report examines delay projections, but primarily focuses on the noise impact of the Preferred Alternative as well as two other proposals under consideration - the Mitigation Alternative and Ocean Routing - on 13 communities across Staten Island. The analysis, conducted by the Office of Congressman Vito Fossella, found that the Preferred Alternative provided the greatest reduction in delays at Newark Airport and aircraft noise for every community studied, including a 14% decrease in noise for residents living in the northwestern part of Staten Island. In contrast, the Ocean Routing Alternative increased noise levels virtually across the borough while the Mitigation Alternative presented mixed results.

### DELAYS

Reducing delays is the primary objective of the Airspace Redesign. Newark Airport currently holds the distinction of having the highest percentage of delayed flights of any airport in the country. The rest of the airports in the Redesign study area are also among some of the highest delayed airports in the country. Over 25% of planes leaving Newark Airport leave more than 15 minutes after their scheduled departure time. If no action is taken, departure delays in Newark Airport in 2011 will be about 20 minutes per flight. The **Preferred and Mitigation Alternatives** will reduce departure delays about 8 minutes, for an average delay of 12 minutes per flight. On the other hand, **Ocean Routing** will *increase delays* to about **46 minutes per flight!** Keep in mind a flight isn't considered delayed until 15 minutes after its scheduled take off time, so these figures represent time over and above the 15 minutes window allowed by the FAA. Both the Preferred and Mitigation Alternatives would lead to fewer delays, while Ocean Routing will increase delays significantly.

### AIR NOISE IMPACTS

#### Preferred Alternative

The Preferred Alternative would eliminate the 190 degree heading and implements a straight-out departure route from Newark Airport. The analysis found that the Preferred Alternative provides comprehensive noise relief in every community studied:

Northwestern Staten Island	11% decrease in aircraft noise
Rest of North Shore	3% decrease in aircraft noise
Western Mid Island	8% decrease in aircraft noise
Eastern Mid Island	<1% decrease in aircraft noise
South Shore	8% decrease in aircraft noise

### **Mitigation Alternative**

The Mitigation Alternative would allow Ocean Routing for departures between 10:30 pm and 6:00 am and continue the 190 degree heading during periods of low air traffic. The analysis found that the Mitigation Alternative increased noise levels in some communities and decreased them in others, as follows:

Northwestern Staten Island	6% decrease in aircraft noise
Rest of North Shore	2% decrease in aircraft noise
Western Mid Island	4% <b><u>increase</u></b> in aircraft noise
Eastern Mid Island	<1% decrease in aircraft noise
South Shore	1% <b><u>increase</u></b> in aircraft noise

### **Ocean Routing**

Under Ocean Routing, all departing aircraft would continue to use the existing 190 degree heading, follow the Arthur Kill and upon reaching Tottenville, fan out over the Ocean before heading to different departure directions. Under this proposal, virtually all of Staten Island would experience aircraft noise increases, as follows:

Northwestern Staten Island	3% <b><u>increase</u></b> in aircraft noise
Rest of North Shore	2% <b><u>increase</u></b> in aircraft noise
Western Mid Island	4% <b><u>increase</u></b> in aircraft noise
Eastern Mid Island	No Change
South Shore	9% <b><u>increase</u></b> in aircraft noise



## **II. History**

Since the early 1950's, aircraft departing to the south from Newark Airport have deviated from a standard straight-out departure route and instead made a sharp left-hand turn over Staten Island (the 190 degree heading) before coming back over to New Jersey. This has led to an inordinate aircraft noise burden that has been shouldered by Staten Island for more than a half-century. With the vast growth of air traffic and the concomitant population shifts, the resulting increases in aircraft noise have affected the quality of life for many Staten Island residents, predominantly in the northwestern part of the borough. These changes in aircraft patterns, travel usage and demographics have all combined to outstrip noise mitigation efforts.

Since coming to Congress in November, 1997, Congressman Fossella has advocated for a straight-out departure from Newark Airport. Through the use of the Freedom of Information Act, he was able to release to the public a little-known FAA report that advocated a straight-out departure from Newark Airport. The 1980 FAA report was initiated due to the anticipated increase of traffic from Newark Airport. It concluded a straight-out departure would reduce noise, lessen delays and save fuel. The FAA ignored the report and did not implement its recommendations.

Congressman Fossella has used the Resdesign Plan as an opportunity to again advocate for a straight-out departure route. At the same time, New Jersey residents have pushed a departure plan known as Ocean Routing, which Congressman Fossella has opposed because it would shift more aircraft traffic over the skies of Staten Island.

The Redesign Plan is currently nearing completion with the finalization of the Environmental Impact Statement ("EIS"). The FAA will soon choose one of the alternatives as the basis of its redesign.



### **III. The Airspace Redesign Initiative – Purpose and Background**

Since 1999, the FAA has been developing a plan to more efficiently move aircraft in and out of the New York/New Jersey/Philadelphia airspace while maintaining safety and accommodating increased aviation growth. The agency's goal is to create more efficient flight paths in an effort to reduce delays, air pollution and cost to the airlines, which should produce time and financial benefits for the flying public. The FAA states that the redesign is necessary because the region's airports are constantly among the most delayed in the nation - a problem that will only get worse with increasing demand for air travel.

The FAA conducted modeling on existing air traffic patterns and used those to design more efficient routes. Once various alternatives were identified, the FAA was required to begin the environmental impact phase of the redesign. During this phase, the agency modeled noise impacts of different proposed routes on various communities. The FAA is required under this process to select routes that will have as minimal noise impact as possible on populations in the region. It held a series of public meetings and had a public comment period before releasing a Draft Environmental Impact Statement (DEIS) last year.

In March, the FAA released its preferred alternative for redirecting air traffic in the region. The plan is called the Integrated Airspace Alternative Variation with the Integrated Control Complex (ICC) ("Preferred Alternative").

While the Preferred Alternative in its original form provides many benefits for Staten Island and the flying public, models indicate it could increase noise over certain parts of New Jersey. In an attempt to mitigate air noise increases over New Jersey, the FAA has proposed using the Integrated Alternative with "mitigation" measures ("Mitigation Alternative").

In April, the agency issued a draft Mitigation Alternative, which calls for using Ocean Routing during nighttime hours - from 10:30pm to 6am. The Mitigation Alternative would also continue to use the 190 degree heading during low volume departure periods. In addition, while it appears Ocean Routing will not be used during daytime hours, no plan will be completely ruled out until the agency issues its Final EIS.

After a last round of public comment, the FAA is expected to issue the Final EIS in Summer 2007 and make a Record of Decision (ROD) by September 2007. Once the ROD has been made, implementation of the chosen alternative for the airspace redesign will begin.



#### **IV. Proposals Under Consideration**

The FAA focused on five alternative departure patterns as part of its redesign:

- Modifications to Existing Airspace
- The Preferred Alternative
- The Mitigation Alternative
- The Integrated Alternative without the ICC
- Ocean Routing

This report focuses on the Preferred Alternative, Mitigation Alternative and Ocean Routing because they have the most significant implications for Staten Island.

##### **i. Preferred Alternative**

This model is based on expanded and integrated airspace. It contains significant route changes for all area airports, but will provide for more straight-out and efficient departures from Newark. It also simplifies arrival patterns. The plan brings more flexibility and adaptability into the current system.

##### **ii. Mitigation Alternative**

This model is very similar to the Preferred Alternative, but with modifications aimed at reducing noise increases in areas of New Jersey. Instead of completely eliminating the 190 degree heading, it would continue to use that path during times of low volume at Newark. In addition, it would use Ocean Routing to send Newark nighttime departures down along Arthur Kill, over the South Shore of Staten Island and out over the Ocean between 10:30pm and 6:00am.

##### **iii. Ocean Routing**

This proposal is being studied at the request of New Jersey public officials on behalf of the New Jersey Citizens Against Aircraft Noise (NJCAAN). Ocean Routing would send all traffic departing Newark over the North Shore of Staten Island, down along the Arthur Kill and then over the South Shore out towards the Ocean before each plane heads toward its intended destination. For example, even westbound planes would travel this route.

The FAA has continuously said this proposal does not meet the scope or the need of the project and has rejected it in the past. The Agency has also said Ocean Routing will lead to increased delays and cost the airlines over \$307 million a year – a cost sure to be passed onto the consumer.<sup>1</sup> However, it continues to be considered as an alternative.

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<sup>1</sup> FAA Briefing to Congressional Staffers, "NY/NJ/PHL Metropolitan Area Airspace Redesign – Draft Environmental Impact Statement DEIS," 12/20/05, p. 20 (powerpoint).  
[http://www.faa.gov/airports/airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/congress\\_vids/media/congress\\_report\\_122005.pdf](http://www.faa.gov/airports/airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/congress_vids/media/congress_report_122005.pdf)



## V. Delays

Reducing delays is the primary objective of the Airspace Redesign. Newark Airport currently holds the distinction of having the highest percentage of delayed flights of any airport in the country (2006 data). The rest of the airports in the Redesign study area are also among some of the highest delayed airports in the country. Over 25% of planes leaving Newark Airport leave more than 15 minutes after their scheduled departure time.<sup>2</sup> If no action is taken, departure delays in Newark Airport in 2011 will be about 20 minutes per flight. Projected delays for 2011 under the focus alternatives are as follows:

Alternative	2011 Delays (Minutes Per Flight)
No Action	20
Preferred Alternative	12
Mitigation Alternative	12
Ocean Routing	46

As you can see, both the Preferred and Mitigation Alternative will reduce departure delays about 8 minutes per flight, while **Ocean Routing** will *increase delays* to about **46 minutes per flight! Keep in mind a flight isn't considered delayed until 15 minutes after its scheduled take off time, so these figures represent time over and above the 15 minute window allowed by the FAA.**<sup>3</sup>

Reduced delays from the Preferred Alternative will have significant positive economic impacts. Delay reductions at all study area airports from the Preferred Alternative will **reduce operating costs in 2011 by over \$248 million** (2004 dollars, 2004 oil prices) - savings that could potentially benefit the flying public in the form of less expensive airline tickets. The alternative also provides for improved aviation operations in severe weather conditions, which would reduce delays and save as much as **\$1 million per day, or \$37 million in 2011, on top of the savings previously mentioned.** Finally, a 1999 study showed congestion costs nationwide could come at a price of \$268 billion to the American economy in 2010 (in terms of costs to airlines, lost jobs, loss of service to people who wish to fly). With 15-20% of the nation's 2011 air traffic projected to occur at airports in the Redesign area, implementation of the Preferred Alternative could lead to as much as **\$7 billion to \$9 billion in benefits in 2011.**<sup>4</sup> On the other hand, as previously mentioned Ocean Routing will cost airlines over \$307 million a year. Given these facts, it is obvious the Preferred Alternative holds the most benefits to both our economy and the flying public, while Ocean Routing comes with the most cost and increased delays.

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<sup>2</sup> Newark delay data compiled by House Transportation and Infrastructure Committee staff from the Bureau of Transportation Statistics.

<sup>3</sup> FAA New York/New Jersey/Philadelphia Metropolitan Airspace Redesign DEIS Briefing for Congressional Staff, 12/20/05, p. 23.

[http://www.faa.gov/airports\\_airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/congress\\_vids/media/congress\\_report\\_122005.pdf](http://www.faa.gov/airports_airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/congress_vids/media/congress_report_122005.pdf)

<sup>4</sup> Data provided by FAA staff.



## **VI. Interpreting Air Noise Data: What is a DNL?**

The measurement for determining air noise impacts over communities is called the Day-Night Average Sound Level, or DNL. DNL figures represent an energy-average noise level over a 24-hour period. They do not represent a particular sound level heard at a particular point of the day, but rather an average level of sound exposure over the course of the day. In other words, someone could hear very loud noise at a certain time of the day, but quiet the rest of the day and the DNL would be an average. A DNL is expressed in a decibel (dB) level and was concluded to be an acceptable standard for determining impacts of air noise increases or decreases by a federal interagency committee made up of the EPA, FAA, Department of Defense (DOD), Department of Housing and Urban Development (HUD) and Veterans Administration.<sup>5</sup>

As an example, say a plane taking off for 30 seconds out of a day exposed someone who was about 200 feet away to a noise level of 100 decibels (dB) during that time and the average decibel level someone heard throughout the rest of the day was 50 dB (equivalent to a normal conversation in your home). The FAA formula would put the DNL – or the average sound exposure throughout the day – at about 66 dB, expressed as 66 DNL. Here are some examples of the decibel (dB) level of different events:

<b>Sound Event</b>	<b>Decibel Level</b>
A whisper	20dB
Conversation at home	50dB
Passenger car at 65 mph (25' away)	77dB
Lawnmower	90dB
Subway train (200' away)	95dB
Jet takeoff (200' away)	130dB

More real world examples of DNLs in various setting are seen in Figure E-6 on page nine of the FAA's Draft EIS (Attachment 1 of this report). It shows a medium density urban area (like Great Kills) has a typical range of between 55 and 65 DNL on any given day, where as the downtown of a major metropolis (like lower Manhattan) will generally have a range of about 72 to 80 DNL.<sup>6</sup> The same document indicates research shows people will start to have trouble understanding speech above a level of 60 dB indoors and "EPA has identified an indoor DNL of 45 dB as necessary to protect against sleep interference."<sup>7</sup>

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<sup>5</sup> FAA New York/New Jersey/Philadelphia Metropolitan Airspace Redesign Draft EIS, Volume 3, Appendix E, "Noise and Its Effect on People and Noise Modeling Technical Report," p. 8.  
[http://www.faa.gov/airports/airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/dei\\_statement/vol\\_3/media/AppendixE/Sections%201&2.pdf](http://www.faa.gov/airports/airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/dei_statement/vol_3/media/AppendixE/Sections%201&2.pdf)

<sup>6</sup> Ibid, p. 9.

[http://www.faa.gov/airports/airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/dei\\_statement/vol\\_3/media/AppendixE/Sections%201&2.pdf](http://www.faa.gov/airports/airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/dei_statement/vol_3/media/AppendixE/Sections%201&2.pdf)

<sup>7</sup> Ibid, p. 12, 13.



To illustrate how an increase or decrease in DNL would be noticed by affected populations, assume one was running a vacuum cleaner (about 70dB) for 5.7 minutes during the day and the rest of the day (the remaining 23 hours and 54.3 minutes) was quiet at 0dB. That person would be exposed to 46 DNL. In order to go up 1 DNL (from 46 to 47), it would be like having to listen to the vacuum at 70dB for another 1.5 minutes, or a total of 7.2 minutes during the day.

For the terms of the EIS, the FAA has set up three DNL categories and made determinations as to what is considered a “significant” or “slight to moderate” noise increase or decrease. The categories for **noise increases** are as follows:

- Significant Impacts - 1.5 DNL minimum increase resulting in 65+ DNL noise exposure, or 1.5 DNL minimum increase where noise exposure already exceeds 65 DNL.
- Slight to Moderate - 3 DNL minimum increase resulting in noise exposure between 60 and 65 DNL, or 3.0 DNL minimum increase where noise exposure is already between 60 and 65 DNL
- Slight to Moderate - 5 DNL minimum increase resulting in noise exposure between 45 and 60 DNL, or 5 DNL minimum increase where noise exposure is already between 45 and 60 DNL.<sup>8</sup>

There are two “slight to moderate” categories, because the range an area is already in determines how great a minimum DNL increase is needed for the area to register on the FAA’s scale as experiencing a measurable air noise impact. For example, if someone is in an area between 58 and 62 DNL, a 3 DNL increase putting an area into or keeping it in the 60 to 65 DNL range is the minimum increase needed for the FAA to determine there will be a measurable air noise impact (which they will categorize as “slight to moderate”). If you’re in an area that’s between 41 and 55 DNL a 5 DNL increase putting you into or keeping you in the 45 to 60 DNL range is the lowest possible increase for the FAA to say there will be a measurable impact (which again will be considered “slight to moderate”).

The categories correspond inversely for noise decreases. For example, a reduction of 5.0 or greater resulting in an area being put into the 45-60 DNL range is considered significant, a reduction of 3.0 DNL or greater resulting in an area being put in the 60-65 DNL range is considered “slight to moderate”, and a decrease of 1.5 DNL or greater resulting in an area staying in the greater than 65 DNL category is considered “slight to moderate”.

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<sup>8</sup> FAA Draft EIS, p. ES-11.

[http://www.faa.gov/airports/airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/dei\\_statement/vol\\_1/media/Volume%20One%20Documentation.pdf](http://www.faa.gov/airports/airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/dei_statement/vol_1/media/Volume%20One%20Documentation.pdf)



## **VII. Noise Increases and Decreases in Staten Island Neighborhoods**

The Office of Congressman Fossella analyzed the potential noise impacts (or DNL levels) of three proposals under consideration by the FAA in ten different communities across Staten Island. The results were obtained by inputting random addresses into the U.S. Census Bureau website and matching them up with noise exposure tables on the FAA's website

([http://www.faa.gov/airports\\_airtraffic/air\\_traffic/nas\\_redesign/regional\\_guidance/eastern\\_reg/nynjphl\\_redesign/noise\\_exposure\\_tables/](http://www.faa.gov/airports_airtraffic/air_traffic/nas_redesign/regional_guidance/eastern_reg/nynjphl_redesign/noise_exposure_tables/)).

The analysis focused primarily on communities on the North and South Shores of the borough because those areas would experience the majority of the projected impacts under the various alternatives.

The results indicated that the Preferred Alternative provided the greatest amount of noise relief for residents vis-à-vis the current departure pattern while the Mitigation Alternative increased noise in some communities and decreased it in others. The Ocean Routing Alternative produced noise increases in every community studied. The results are as follows:

Staten Island Neighborhoods	2011 Alternative			
	No Action	Ocean Routing	Preferred Alternative	Mitigation Alternative
Huguenot	42.7	46.4	38.6	43.2
Pleasant Plains	43.2	48.4	38.7	44.2
Tottenville	46	50.4	42	47.1
Arlington	56.8	58.2	48.9	53.1
Bulls Head	44.5	46.7	40.1	42.9
Westerliegh	41.6	42.7	39.4	40.2
Port Richmond	42.1	42.9	40.6	41.1
West Brighton	41.4	41.7	40.9	41
Dongan Hills	44.6	44.7	44.4	44
Great Kills	43.2	43.9	40.8	41.7
Charleston	46.7	51.6	43.7	48.7
Mariners Harbor	49.7	50.8	45.7	47.6
St. George	43.3	43.4	43.3	43.2

**Figure 1 – Air Noise Levels for 10 Staten Island Neighborhoods Under Various FAA Alternative**

### **a. North Shore**

An analysis of noise impacts under various alternatives was conducted for four North Shore communities -- Arlington, Mariners Harbor, St. George, Port Richmond, and West Brighton.

**Arlington:** Given the potential elimination of the 190 degree heading, this neighborhood looked to see the most positive impact through the FAA's Preferred Alternative.

- **Preferred Alternative-** Under the Preferred Alternative, Arlington residents would see a **significant noise decrease** of about 8 DNL **(14%)**.
- **Mitigation Alternative-** The Mitigation Alternative produced a slight to moderate **decrease** in noise of about 3.5 DNL **(7%)**.
- **Ocean Routing** – Residents would experience a very small **increase** in noise of about 1.5 DNL **(3%)**.

**Mariners Harbor:** This is another community that would benefit greatly from elimination of the 190 degree heading.

- **Preferred Alternative-** Residents would see a 4 DNL **decrease (8%)**. This is close to being classified as a significant decrease.
- **Mitigation Alternative-** This alternative would lead to a smaller **decrease** of about 2 DNL **(4%)**.
- **Ocean Routing** – Leads to a **slight increase** of 1 DNL **(2%)**. The FAA would not consider this noticeable.

**St. George:** The noise levels for St. George remain relatively constant regardless of the FAA alternative. The base levels are also under the 45-60 DNL FAA baseline category.

**Port Richmond:** The noise levels in Port Richmond fall under the 45-60 DNL FAA baseline. However, the community would benefit most under the Preferred Alternative.

- **Preferred Alternative:** This proposal would produce **noise reductions** of about 1.5 DNL **(4%)**.
- **Mitigation Alternative:** Residents would experience a **decrease** of about 1 DNL **(3%)**.
- **Ocean Routing:** This proposal would **increase** noise by less than 1 **(2%)**.

**West Brighton:** This area remains relatively unaffected by the three Alternatives and is under the FAA baseline. However, West Brighton would benefit most under **both the Preferred Alternative (1%) and the Mitigation Alternative (1%)**. Ocean Routing would produce a **slight noise increase (1%)**.



### **b. Mid Island**

**Bulls Head:** While the area currently falls just below the FAA baseline, noise **increases from Ocean Routing** bring it into the baseline category.

- **Preferred Alternative** – The area would benefit from a nearly 4.5 DNL **decrease (10%)**.
- **Mitigation Alternative**– This proposal would **reduce** noise by about a 1.5 DNL **(3%)**.
- **Ocean Routing**– Ocean Routing would **increase** noise by about 2 DNL **(5%)**.

**Westerleigh:** The current noise levels in Westerleigh fall under the FAA baseline, but Ocean Routing would raise noise levels.

- **Preferred Alternative:** Residents would benefit from a 2 DNL **reduction (about 5%)**.
- 
- **Mitigation Alternative:** This proposal would **reduce** noise by 1.5 DNL **(4%)**.
- **Ocean Routing:** Under this alternative, residents would experience a 1 DNL **increase in noise**, or about **(2%)**.

**Dongan Hills:** The area fares very **slightly better under the Preferred and Mitigation alternatives** and a **slight noise increases under Ocean Routing**. However, the increases and decreases are extremely small and the area is essentially unaffected by any FAA alternative.

### **c. South Shore**

The South Shore would experience the most noticeable noise increases under the Ocean Routing proposal, putting several neighborhoods into the slight to moderate increase category.

#### **Tottenville:**

- **Preferred Alternative** – Residents would experience a 4 DNL **decrease (9%)** under this model, which almost constitutes a significant decrease.
- **Mitigation Alternative** – The Mitigation Alternative would erase the air noise reductions from the Preferred Alternative and lead to a 1 DNL **increase (2%)**.
- **Ocean Routing** - Residents would experience roughly a 4.5 DNL **increase (10%)**, constituting a slight to moderate increase in noise.

### Pleasant Plains:

- **Preferred Alternative** – Residents would benefit from a 3.5 DNL **decrease (11%)**, which is close to significant.
- **Mitigation Alternative** – This proposal would produce a very small **increase** of about 1 DNL **(2%)**.
- **Ocean Routing** – Residents would experience an **increase** of just over 5 DNL **(12%)**, putting in the community in the slight to moderate increase category.

### Huguenot:

- **Preferred Alternative** – Residents would enjoy a 4 DNL **decrease (10%)**, which is considered borderline significant.
- **Mitigation Alternative** – Noise levels would **increase** 0.5 DNL **(1%)**.
- **Ocean Routing** – This proposal would **increase** noise levels by 4 DNL **(9%)**.

**Great Kills:** Under all scenarios, this neighborhood would fall under the FAAs baseline category, but results are as follows:

- **Preferred Alternative** – Residents would experience a 2.4 DNL **decrease (about 6%)** under this proposal.
- **Mitigation Alternative** – The area would see a 1.5 DNL **decrease** in this area **(about 4%)**, cutting some of the gains from the preferred alternative.
- **Ocean Routing** – There would be a **very small increase** of just under 1 DNL **(about 2%)**, which may not be noticeable.

### Charleston:

- **Preferred Alternative** – Residents would enjoy a 3 DNL **decrease (about 6%)**, which is close to being a significant decrease.
- **Mitigation Alternative** – This alternative would **increase** noise in the area by 2 DNL **(about 4%)**.
- **Ocean Routing** – This proposal leads to about a 5 DNL **increase (11%)**, which given the area's current DNL level, would fall into the FAA's "slight to moderate" increase category.



## **VIII. Conclusion**

The data provides conclusive evidence that the Preferred Alternative would reduce noise levels the most for all communities on Staten Island. It is also the plan the FAA has stated would lead to the most efficient aircraft traffic patterns – significantly reducing both delays and national economic cost. Under the plan, significant noise reductions would occur on the Northwestern portion of Staten Island as well as in parts of the Mid Island and South Shore.

The Mitigation Alternative would lead to some aircraft noise reductions on the North Shore, though not as dramatic as with the Preferred Alternative. Additionally, the Mitigation Alternative would also lead to noticeable noise increases on parts of the South Shore.

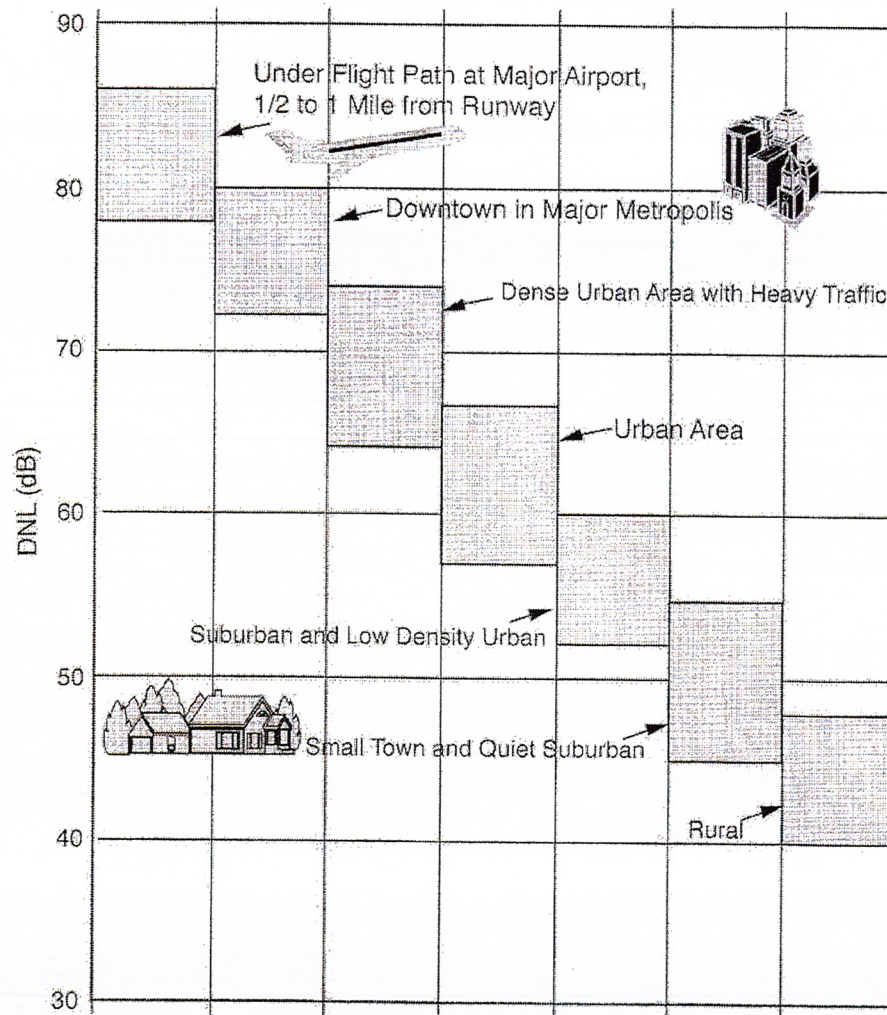
Finally, Ocean Routing would lead to noise increases throughout the Island, most notably on the South Shore. It would also lead to small increases in noise in areas of the North Shore that are already negatively impacted.

As an end note, this report only details the effects of the FAA's proposals in relation to delays and air noise. It does not examine increased costs to airlines due to excess fuel burn from a continuation of the 190 degree heading or the implementation of Ocean Routing. The FAA should closely examine these issues and make a determination on how these factors would harm the local economy and adversely affect the environment through increased air pollution and carbon emissions.



Figure E-6

## Typical Range of Outdoor Community Day-Night Average Sound Levels



Source: U.S. Department of Defense, Departments of the Air Force, the Army, and the Navy, 1978. *Planning in the Noise Environment*. AFM 19-10. TM 5-803-2, and NAVFAC P-970. Washington, D.C.: U.S. DoD.